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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/031,131	03/15/2002	Gerald Walter	VOSS-P01-001	6180

28120 7590 11/15/2004

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EXAMINER	
TRAN, MY CHAU T	

ART UNIT	PAPER NUMBER
1639	

DATE MAILED: 11/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/031,131	WALTER ET AL.	
	Examiner	Art Unit	
	MY-CHAU T TRAN	1639	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 August 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) *3,6-9,18 and 20-23* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4,5,10-17,19 and 24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 January 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

1. Applicant's amendment filed 8/9/2004 is acknowledged and entered. Claims 1, 13-14, and 17 have been amended. Claim 24 is added.

2. Claims 1-24 are pending.

Election/Restrictions

3. Claim 18 is withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction requirement in the reply filed on 10/24/2003.

4. Applicant's species election with traverse in Paper No. 10/24/03 is acknowledged. Applicant has elected the following species for the elected invention (Claims 1-17 and 19-23):

a. First molecule: an organic molecule (an antibody or a fragment or a derivative thereof).

b. Second molecule: an organic molecule (a CDNA expression product or a fragment thereof).

c. Type of attachment to magnetic particle: an affinity tag (His-tag).

d. Type of "immunological" means: ELISA.

Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement is still deemed proper and is therefore made **FINAL**.

5. Claims 3, 6-9, and 21-23 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a ***nonelected species***, there being no allowable generic or linking claim. Applicant timely traversed the species election requirement in the reply filed on 10/24/2003.

Priority

6. This application is a 371 of PCT/EP00/06271 filed 7/04/2000, which claims priority to a foreign application EPO 99112970.1 filed 7/05/1999.

Withdrawn Rejections

7. The rejection of claims 1-2, 4-5, 10-17, and 19 under 35 USC 112, first paragraph (written description) has been withdrawn in light of applicant's amendments of claim 1.

8. The rejections of claims 1-2, 4-5, 10-17, and 19 under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention have been withdrawn in light of applicant's amendments of claims 1, 13-14, and 17.

9. The rejection of claims 1-2, 4-5, 10-17, and 19 under 35 USC 112, second paragraph, as being incomplete for omitting essential steps has been withdrawn in light of applicant's amendments of claim 1.

10. The rejection of claims 1-2, 4-5, 10-13, 15-17, and 19 under 35 USC 102(b) as being anticipated by M^{c}Connell et al. (*Biotechniques*, **2/1999**, 26(2):208-214) has been withdrawn in view of the new grounds of rejections and applicant's amendments of claim 1.

11. The rejection of claims 1-2, 10-13, and 15-17 under 35 USC 102(b) as being anticipated by Kausch et al. (US Patent 5,508,164) has been withdrawn in view of the new grounds of rejections and applicant's amendments of claim 1.

12. The rejection of claims 1-2, 4, 10-13, and 15-16 under 35 USC 102(b) as being anticipated by Chagnon et al. (US Patent 4,628,037) has been withdrawn in view of the new grounds of rejections and applicant's amendments of claim 1.

13. The rejection of claims 1-2, 10-17, and 19 under 35 USC 102(b) as being anticipated by Neurath et al. (US Patent 5,798,206) has been withdrawn in view of the new grounds of rejections and applicant's amendments of claim 1.

14. The rejection of claims 1-2, 4-5, 10-17, and 19 under 35 USC 102(b) as being anticipated by Wang et al. (US Patent 5,922,617) has been withdrawn in view of the new grounds of rejections and applicant's amendments of claim 1.

15. Claims 1-2, 4-5, 10-17, 19, and 24 are treated on the merit in this Office Action.

New Rejections – Necessitated by Amendment

Claim Rejections - 35 USC § 112

16. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

17. Claims 1-2, 4-5, 10-17, 19, and 24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a written description rejection.

The instant claim 1 recites a method for identifying from a library of first molecules at least one member that specifically interact with a second molecule. The method comprises the step of: (a) contacting a first molecule with a second molecule affixed to a magnetic particle under conditions that allow a specific interaction between said first molecule and second molecule to occur, wherein said first molecule is not known to interact with said second molecule; (b) subjecting the product obtained in step (a) to at least one washing step, wherein the magnetic particles are transferred to a new container; (c) selecting said first molecule and second molecule which specifically interact; (d) determining the identity of said first and/or second molecule selected by steps (a) to (c), wherein step (a), (b), and (c) are carried out in parallel in more than one container in an arrayed form, using an automated device comprising a magnetic particle processor.

The specification disclosure does not sufficiently teach the claimed method for identifying from a library of first molecules at least one member that specifically interact with a second molecule wherein the conditions that allow a specific interaction between said first molecule and second molecule to occur is known, but it is not known that the first molecule interact with the second molecule, i.e. there is '***prior***' knowledge of the conditions that result in the ***specific interaction*** between said first molecule and second molecule yet there is no '***prior***' knowledge the first molecule would interact with the second molecule. The specification description is directed to a method of detecting ligand-binding activity (e.g. antibody-ligand or protein-protein interaction) with known magnetic particles such as commercial beads (e.g. Dynabeads) (see e.g. specification pg. 4, line 8 to pg. 5, line 28; Examples on pages 14-21). This method clearly does not provide an adequate representation regarding the claimed method for identifying from a library of first molecules at least one member that specifically interact with a second molecule wherein the conditions that allow a specific interaction between said first molecule and second molecule to occur is known, but it is not known that the first molecule interact with the second molecule. The specification examples are drawn to an ELISA method for detecting antibody-ligand interaction with magnetic particle phage (pg. 19-20, Example 10) and a method of detecting protein-protein interaction with magnetic particle (pg. 20, Example 13). Thus the specification does not teach the claimed method for identifying from a library of first molecules at least one member that specifically interact with a second molecule wherein the conditions that allow a specific interaction between said first molecule and second molecule to occur is known, but it is not known that the first molecule interact with the second molecule.

Vas-Cath Inc. v. Mahurkar, 19 USPQ2d 1111, makes clear that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession *of the invention.* The invention is, for purposes of the 'written description' inquiry, *whatever is now claimed.*" (See page 1117.) The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See Vas-Cath at page 1116.).

With the exception of the method of detecting ligand-binding activity (e.g. antibody-ligand or protein-protein interaction) with known magnetic particles such as commercial beads (e.g. Dynabeads) disclosed by the specification example disclosed by the specification, the skilled artisan cannot envision the method for identifying from a library of first molecules at least one member that specifically interact with a second molecule wherein the conditions that allow a specific interaction between said first molecule and second molecule to occur is known, but it is not known that the first molecule interact with the second molecule. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method for isolating it. See Fiers v. Revel, 25 USPQ2d 1601, 1606 (CAFC 1993) and Amgen Inc. V. Chugai Pharmaceutical Co. Ltd., 18 USPQ2d 1016. In Fiddes v. Baird, 30 USPQ2d 1481, 1483, claims directed to mammalian FGF's were found unpatentable due to lack of written description for the broad class. The specification provided only the bovine sequence.

Finally, University of California v. Eli Lilly and Co., 43 USPQ2d 1398, 1404, 1405 held that:

...To fulfill the written description requirement, a patent specification must describe an invention and do so in sufficient detail that one skilled in the art can clearly conclude that "the inventor invented the claimed invention." *Lockwood v. American Airlines, Inc.*, 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (1997); In *re Gosteli*, 872 F.2d 1008, 1012, 10 USPQ2d 1614,

1618 (Fed. Cir. 1989) (" [T]he description must clearly allow persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed."). Thus, an applicant complies with the written description requirement "by describing the invention, with all its claimed limitations, not that which makes it obvious," and by using "such descriptive means as words, structures, figures, diagrams, formulas, etc., that set forth the claimed invention." *Lockwood*, 107 F.3d at 1572, 41 USPQ2d at 1966.

In the present instance, the specification does not teach claimed method for identifying from a library of first molecules at least one member that specifically interact with a second molecule wherein the conditions that allow a specific interaction between said first molecule and second molecule to occur is known, but it is not known that the first molecule interact with the second molecule. Therefore, only the method of detecting ligand-binding activity (e.g. antibody-ligand or protein-protein interaction) with known magnetic particles such as commercial beads (e.g. Dynabeads), but not the full breadth of the claim method meet the written description provision of 35 U.S.C 112, first paragraph.

18. Claims 1-2, 4-5, 10-17, 19, and 24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s) at the time the application was filed, had possession of the claimed invention. This is a new matter rejection.

The instant claim 1 recites a method for identifying from a library of first molecules at least one member that specifically interact with a second molecule. The method comprises the step of: (a) contacting a first molecule with a second molecule affixed to a magnetic particle under conditions that allow a specific interaction between said first molecule and second molecule to occur, wherein said first molecule is not known to interact with said second

molecule; (b) subjecting the product obtained in step (a) to at least one washing step, wherein the magnetic particles are transferred to a new container; (c) selecting said first molecule and second molecule which specifically interact; (d) determining the identity of said first and/or second molecule selected by steps (a) to (c), wherein step (a), (b), and (c) are carried out in parallel in more than one container in an arrayed form, using an automated device comprising a magnetic particle processor.

The recitation of '*wherein said first molecule is not known to interact with said second molecule*' claimed in claim 1, have no clear support in the specification and the claims as originally filed. The specification description is directed to a method of detecting ligand-binding activity (e.g. antibody-ligand or protein-protein interaction) with known magnetic particles such as commercial beads (e.g. Dynabeads) (see e.g. specification pg. 4, line 8 to pg. 5, line 28; Examples on pages 14-21). The specification disclosure is silent on the limitation of "*wherein said first molecule is not known to interact with said second molecule*". Therefore, the invention as originally disclosed in the specification does not provide support for the limitation of "*wherein said first molecule is not known to interact with said second molecule*".

If applicants disagree, applicant should present a detailed analysis as to why the claimed subject matter has clear support in the specification.

19. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

20. Claims 1-2, 4-5, 10-17, 19, and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. The method step (a) of claim 1 is vague and indefinite because it is unclear as to the claimed contacting step wherein the conditions for a ***specific interaction*** between the first molecule and the second molecule are known, yet it is not known that the first molecule would interact with the second molecule, i.e. the setting for the ***specific interaction*** between the first molecule and the second molecule are known, but it is not known that the first molecule would interact with the second molecule.

b. Claim 10 recites the limitation "number" in line 1. There is insufficient antecedent basis for this limitation in the claim 1.

c. Claim 11 recites the limitation "number" in line 1. There is insufficient antecedent basis for this limitation in the claim 1.

d. Claims 15-17 are vague and indefinite. The claimed method step (c) of claim 1 recite the step of "*selecting said first molecule and second molecule which specifically interact*". Claim 15 recite "*The method of claim 1, wherein step (c) is effected by immunological means.*" It is unclear as to the correlation between the claimed selecting step (c) of claim 1 and the claimed "*immunological means*" of claim 15, i.e. how selecting of the first molecule that specifically interact with the second molecule is brought about by the claimed "*immunological means*".

e. Moreover, claims 15-17 is incomplete and thus is indefinite. The claimed method step (c) of claim 1 recite the step of "*selecting said first molecule and second*

molecule which specifically interact". Claim 17 recites "*The method of claim 15 or 16, wherein step (c) is effected on a membrane and/or filter and/or a glass slide and/or in a microtiter plate.*" Claim 15 recite "*The method of claim 1, wherein step (c) is effected by immunological means.*" However, ***no*** step(s) are set forth that would result in the selection of the first molecule that specifically interacts with the second molecule. That is, the claims are incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01.

f. The phrase "a library of molecules" of claim 24 is vague because it is unclear whether it is refers to the library of the first molecules as claimed in claim 1 or a 'different' library of molecule. Thus it is it is unclear what constitutes the metes and bounds as to the 'type' of library of molecules from which the second molecule derived in the presently claimed method.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-2, 4-5, 10-17, 19, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. (US Patent 5,922,617).

Wang et al. discloses a method for screening a large numbers of components, wherein either first component or second component is bound to a solid substrate, where one is interested in the determining the interaction between the first and second components (see e.g. col. 1, line 66 to col. 2, line 4; col. 17, lines 56-67). The method comprises of reacting the bound component (second molecule) with the mobile component (first molecule) (refer to step (a)) (see e.g. col. 9, lines 56-59), washing the solid substrate (refer to step (b) and (c)) (see e.g. col. 9, lines 61-64), and determine the interaction between the two components (refers to step (d)) (see e.g. col. 10, lines 7-9) (see e.g. col. 9, line 26 to col. 10, line 19). Additionally, the method comprise of arranging the solid substrate onto a support (container) in a predetermine pattern (array form) and also in multiple sections or units, i.e. "*more than one container*", (refers to step (d)) (col. 6, lines 36-45; fig. 5). The solid substrate include magnetic bead (see e.g. col. 5, lines 60-64). The bound components include nucleic acids and proteins (see e.g. col. 3, lines 46-61; col. 5, lines 7-10). The bound component is either directly or indirectly (e.g. covalent or non-covalent binding) bound to the solid substrate (see e.g. col. 3, lines 12-36) (refers to claim 13).

The method of Wang et al. differs from the presently claimed invention by failing to include in the wash step the transferred of the magnetic particles to a new container.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include in the wash step the transferred of the magnetic particles to a new container in the method of Wang et al. One of ordinary skill in the art would have been motivated to include in the wash step the transferred of the magnetic particles to a new container because transferring the magnetic particles to a new container in the wash step would enhance the stringency of the interaction between the first and second molecule and thus would be a choice of experimental design and is considered within the purview of the cited prior art. Furthermore, one of ordinary skill in the art would have reasonably expectation of success in the transferring of the magnetic particles to a new container in the wash step because Wang et al. discloses that the wash step(s) is for the removal of non-specifically bound entities, to enhance the stringency of hybridization, to wash away interfering materials (see col. 9, lines 61-65).

5. Claims 1-2, 4-5, 10-17, 19, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over M^{c}Connell et al. (*Biotechniques*, **2/1999**, 26(2):208-214).

M^{c}Connell et al. disclosed several different methods for screening phage display libraries (pg. 208, left col., lines 1-8). One method of screening uses the paramagnetic beads wherein the target antibody (second molecule) is immobilized (pg. 208, left col., line 40 to pg. 214, left col., line 18). The method step comprise of a) reacting the phage (first molecule) of a phage libraries to the target antibody (refers to step (a) of Claim 1), b) washing the paramagnetic beads (refers to step (b) of Claim 1), c) determining the antibody-binding phage (pg. 208, middle col., lines 1-6) (refers to step (c) of Claim 1), d) selecting the binding phage (pg. 211 (middle page), middle col., line 18 to right col., line 7) (refers to step (d) of Claim 1). The determination step is performed

by plague lifts with nitrocellulose filters (pg. 211 (middle page), right col., lines 8-19) (refer to Claims 15-17). The methods further comprise of sequence analysis of the binding phage (pg. 214, left col., line 46 to middle col., line 4) (refers to Claim 12).

The method of M^{c}Connell et al. differs from the presently claimed invention by failing to include in the wash step the transferred of the magnetic particles to a new container.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include in the wash step the transferred of the magnetic particles to a new container in the method of M^{c}Connell et al. One of ordinary skill in the art would have been motivated to include in the wash step the transferred of the magnetic particles to a new container because transferring the magnetic particles to a new container in the wash step would enhance the stringency of the interaction between the first and second molecule and thus would be a choice of experimental design and is considered within the purview of the cited prior art. Furthermore, one of ordinary skill in the art would have reasonably expectation of success in that the wash step include transferring the magnetic particles to a new container in the method of M^{c}Connell et al. because since the taught method would need no modification other than transferring the magnetic particles to a new container that do not materially affect the method steps.

Response to Arguments

6. Applicant's arguments with respect to claims 1-2, 4-5, 10-17, and 19 have been considered but are moot in view of the new grounds of rejection.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MY-CHAU T TRAN whose telephone number is 571-272-0810. The examiner can normally be reached on Mon.: 8:00-2:30; Tues.-Thurs.: 7:30-5:00; Fri.: 8:00-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, ANDREW WANG can be reached on 571-272-0811. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

mct
November 8, 2004

PADMASHRI PONNALUR
PRIMARY EXAMINER